

REMARKS

This Amendment is in response to the Office Action mailed February 12, 2002. In the Office Action, claims 1-20 were rejected under 35 U.S.C. §103(a). Applicants respectfully traverse the rejection in its entirety. Herein, claims 1-2, 8-9 and 16-17 have been cancelled without prejudice. Claims 3-7 and 10-15 have been amended by placing claims 3 and 10 into independent format and altering dependency thereto. Neither claim 3 nor 10 has been narrowed or amended in accordance with statutory grounds for patentability. Thus, no interpretation under *Festo* should not applied to the outstanding claims. Claims 21 and 22 have been added.

I. REJECTIONS UNDER 35 U.S.C. § 103(a)

Claims 1-3, 5, 8-10, 12 and 15-17 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,002,411 issued to Dye. Applicants respectfully disagree with the rejection because a prima facie case of obviousness has not been met. For instance, in contrast to assertions in the Office Action, Dye fails to teach or even suggest a system “wherein the display controller sends only the marked memory pages of the image frame to the display (col. 25, lines 22-28)”. *See page 3, paragraph 3 of the Office Action*. Instead, Dye teaches a Window Assembler that utilizes information in the Window Workspace buffer as well as information from the software driver regarding screen changes to assemble a Display Refresh List in system memory. *See col. 4, lines 33-47 of Dye*. When a screen change occurs, the Window Assembler uses the Display Refresh List to determine the following: (1) where in the linear or xy memory space data resides; (2) how many bits per pixel the window requires; (3) how to map the color space; and (4) the necessary xy rectangle extents and window priority. *Id.* The pointer-based display refresh system does not implement a display controller to send only marked memory pages to the image frame of the display as set forth in claims 3, 12 and 15.

Hence, Applicants respectfully request withdrawal of the above-cited §103(a) rejection as well the §103(a) rejections directed to remaining claim groupings (4,11,18), (6,13,19), (7,14,20). Arguments to traverse the §103(a) rejections directed to the remaining claim groupings are not warranted in light of the allowability of original claims 3, 12 and 17, where the limitations of Claim 17 have been added to claim 15.

VERSION WITH MARKINGS TO SHOW CHANGES MADE

1 1. CANCELLED

1 2. CANCELLED

1 3. (Amended) A [The] system [of claim 2, wherein] to refresh a display, the system
2 comprising:
3 a memory to store images of an image frame in a plurality of memory pages;
4 a processor to perform drawing operations to generate the images for the image frame,
5 the processor marking memory pages corresponding to regions of the image frame that have
6 been updated; and
7 a [the] display controller in communication with the memory to access the image frame
8 and to send[s] only the marked memory pages of the image frame to the display to refresh the
9 display.

1 4. (Amended) The system of claim 3[1], wherein the image frame is divided into
2 tiles representing two-dimensional regions of the image frame, each of the tiles is stored in one
3 separate memory page.

1 5. (Amended) The system of claim 3[1], wherein each of the memory pages has a
2 size of four Kilobytes.

1 6. (Amended) The system of claim 3[1], wherein the image frame is represented by
2 a configuration where color components of a pixel are deposited in contiguous memory
3 locations.

1 7. (Amended) The system of claim 3[1], wherein the image frame is represented by
2 a configuration where color components of a pixel are separated and deposited in multiple color
3 planes.

1 8. CANCELLED

1 9. CANCELLED

1 10. (Amended) A [The] method [of claim 9, further comprises] to refresh a display,
2 comprising:
3 storing at least one image frame such that content of the image frame is stored in a
4 plurality of memory pages in a memory;
5 marking memory pages corresponding to regions of the image frame that have been
6 updated while performing drawing operations; and
7 sending only the marked memory pages of the image frame to the display to refresh the
8 display.

1 11. (Amended) The method of claim 10[8] further comprising:
2 dividing the image frame into tiles representing two-dimensional regions of the image
3 frame; and
4 storing each of the tiles in one separate memory page.

1 12. (Amended) The method of claim 10[8] further comprises using memory pages of
2 four Kilobytes in size.

1 13. (Amended) The method of claim 10[8] further comprises organizing the image
2 frame using a configuration where color components of a pixel are deposited in contiguous
3 memory locations.

1 14. (Amended) The method of claim 10[8], further comprises organizing the image
2 frame using a configuration where color components of a pixel are separated and deposited in
3 multiple color planes.

1 15. (Amended) A program embodied on a system-readable medium to refresh a
2 display, comprising:

3 a first sub-program to control storing at least one image frame in a memory such that
4 content of the image frame is stored in a plurality of memory pages in the memory; [and]
5 a second sub-program to mark memory pages corresponding to regions of the image
6 frame that have been updated while performing drawing operations; and
7 at least one [second] sub-program to access the image frame and to send only the marked
8 memory pages of the image frame one memory page at a time to the display to refresh the
9 display.

1 16. CANCELLED

1 17. CANCELLED

1 18. The program of claim 15 further comprising:
2 a third sub-program to divide the image frame into tiles representing regions of
3 the image frame and to store each tile in a separate memory page.

1 19. The program of claim 15 further comprising:
2 a third sub-program to organize the image frame using a configuration where color
3 components of a pixel are deposited in contiguous memory locations.

1 20. The program of claim 15 further comprising:
2 a third sub-program to organize the image frame using a configuration where
3 color components of a pixel are separated and deposited in multiple color planes.

1 21. (New) The system of claim 3, wherein the display controller sends the image
2 frame one memory page at a time to the display to refresh the display.

1 22. (New) The method of claim 10, wherein the sending of the marked memory
2 pages of the image frame to the display to refresh the display further comprises sending the
3 marked memory pages one memory page at a time.

CONCLUSION

In view of the amendments and remarks made above, it is respectfully submitted that all pending claims are in condition for allowance, and such action is respectfully solicited.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

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WILLIAM W. SCHAAL
Reg. No. 39,018

12400 Wilshire Boulevard, Seventh Floor
Los Angeles, California 90025
(714) 557-3800

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on: March 15, 2002.



Corrin R. Reynolds 3/15/02
Date